UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

IN THE MATTER OF: KEEFE ENVIRONMENTAL SERVICES SUPERFUND SITE Clean Harbors of Natick, Inc. P. O. Box 327 625 Wood Road Braintree, MA 02184, and Ethan Allen, Inc. c/o Interco, Inc. 101 South Hanley Road St. Louis, MI 63105 Respondents Proceedings under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C.§ 9606(a).	Docket No. I-90-1064 ADMINISTRATIVE ORDER

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I. JURISDICTION

1. This Order is issued by the United States Environmental Protection Agency (EPA) pursuant to the authority of Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA), 42 U.S.C. § 9606(a). This authority was delegated to the Administrator of EPA by Executive Order 12580, and further delegated to the Regional Administrator by Delegation 14-14-B.

II. STATE COORDINATION

2. Notice of the issuance of this Order has been provided to the State of New Hampshire.

III. PURPOSE

3. The purpose of this Order is to compel the Respondents to implement the remedy for the Keefe Environmental Services Superfund site in Epping, New Hampshire (the Site), set forth in the Record of Decision (ROD) dated March 21, 1988, as modified by the Explanation of Significant Differences (ESD) dated June 8, 1990, a copy of which is attached as Appendix I to this Order, and in accordance with the Remedial Action Plan (RAP) set forth in Appendix II to this Order.

IV. STATEMENT OF FACTS

Respondents

4. The Respondents consist of the following duly organized corporations:

a. Clean Harbors of Natick, Inc., a Massachusetts corporation with a place of business in Braintree, Massachusetts; and

b. Ethan Allen, Inc., a Missouri corporation with a place of business in St. Louis, Missouri.

5. According to the business records of Keefe Environmental Services, Inc. (KES) and other transactional documents and information available to EPA and made available to the Respondents, both of the Respondents either arranged for treatment or disposal of hazardous substances which were disposed of at the Site or transported hazardous substances to the Site. These activities occurred during the period from 1978 to 1981.

Site Description

6. The Site is an abandoned hazardous waste disposal facility in Epping, New Hampshire which operated for two and a half years, between 1978 and 1981. The Site consists of approximately seven and a half acres of land located in a semi-rural area approximately two miles southeast of the center of Epping. Three buildings stand in the center of the Site and the remains of a man-made lagoon are located in the northeast

quadrant of the Site. A dozen residences, which provide housing for more than thirty people, lie along Exeter Road adjacent to the Site. There is a chicken farm to the west of the Site and an automobile raceway to the east.

7. Topographic relief at the Site is low to moderate, with the highest elevations (El. 160+ MSL) occurring at the northeast corner of the Site and the lowest elevations in a wetland (El. 126± MSL) to the southwest, toward Exeter Road.

8. Two surface streams originate adjacent to the Site. Surface water accumulating in a wetland area at the northwest corner of the Site drains northwesterly toward the Piscassic River via a brook which flows beneath the gravel pit access road. Surface water from all other sections of the Site flows southward toward a wetland area immediately south of the Site. Surface water subsequently flows eastward from this wetland area toward the Fresh River.

Site History

9. From 1978 to 1981, KES operated the Site as a chemical waste storage facility, during which time drum and bulk shipments of chemical wastes were accepted at the Site.

10. When the facility was shut down in January of 1981, thousands of deteriorating surface containers of waste, as well as a large waste-filled lagoon which threatened to overflow

during periods of heavy precipitation, remained on the Site. That same year, the Site was included on the Interim National Priority List. EPA, pursuant to Section 105 of CERCLA, placed the KES Site in Epping, New Hampshire on the National Priorities List, set forth at 40 C.F.R. 300, Appendix B, by publication in the Federal Register on September 8, 1983, 48 Fed. Reg. 40670 et seq.

11. From 1981 to 1983, EPA and the New Hampshire Department of Environmental Services (NHDES) performed a series of emergency removal actions in an effort to stabilize the hazardous conditions at the Site.

12. In July of 1983, NHDES, under a cooperative agreement with EPA, engaged Tighe and Bond Consulting Engineers (T&B) to conduct a Remedial Investigation (RI) of the Site to determine the nature and extent of the contamination. T&B submitted the report resulting from this RI in October of 1984.

13. In August of 1985, NHDES, still under cooperative agreement with EPA, engaged the firm of Camp Dresser & McKee, Inc. (CDM) to perform a Supplemental RI and Feasibility Study (FS). The resulting Supplemental RI and FS reports were completed and released for public review in December of 1987. EPA conducted a public comment period on these reports as well as the agency's Proposed Plan from January 7, 1988 through February

17, 1988. During this comment period, EPA received written comments from Interex Corporation, the corporate predecessor to Respondent Clean Harbors of Natick, Inc., among other parties.

Selected Remedy

14. On March 21, 1988, the Regional Administrator of EPA Region I signed the ROD selecting the remedy for the Site necessary to protect human health, welfare and the environment, pursuant to the National Contingency Plan (NCP), 40 CFR Part 300. The ROD calls for source control through vacuum extraction and management of migration through groundwater extraction and treatment. The ROD is supported by an Administrative Record that contains the documents and information that form the basis for the remedy selection decision. In addition, EPA provided responses to the oral and written comments submitted during the public comment period in the Responsiveness Summary appearing as Appendix A to the ROD.

15. Following the issuance of the ROD, NHDES, under cooperative agreement with EPA, engaged the firm of CDM to perform the Remedial Design (RD) phase of the Site response. In April of 1989, CDM submitted to EPA and NHDES a Draft Preliminary Design Data Evaluation Report (the RD Report) which formed the basis of EPA's modification of the ROD as set forth in the June 8, 1990 ESD. As reported in the RD Report, the data collected by CDM in connection with the RD currently indicates that: first, the target cleanup levels established in the ROD for contaminants

of concern in Site soils have been met; second, contaminated groundwater has migrated further off-site into a sand and gravel aquifer below the wetland west of the Site; and third, contaminated groundwater has migrated deeper into the more impermeable till below the Site.

16. Based on the data obtained in connection with the RD, EPA determined that the following adjustments to or clarifications of the remedy set forth in the ROD are appropriate: first, and consistent with the ROD, vacuum extraction of Site soils to attain cleanup levels is no longer necessary as cleanup levels have been attained; second, groundwater remediation may take longer than previously estimated in order to capture the off-site plume; and third, the contaminated layer of impermeable till will not be remediated. Apart from these adjustments to the scope of the groundwater treatment system the Remedial Action shall be as described in the ROD: collection of groundwater by extraction technologies and groundwater treatment by carbon adsorption. The rationale for these modifications and/or interpretations of the ROD in light of the current status of the Site is set forth in the ESD. The documents and information upon which EPA relied in determining that the modification described in the ESD were appropriate have been added to the Administrative Record for the Site. A copy of the Supplemental Index to the Administrative Record, identifying the documents which have been inserted into the Administrative

Record since March 21, 1988, is attached as Appendix III to this Order.

Endangerment

17. According to Industrial Waste Manifests and other information available to EPA, as confirmed by the results of the RI and, most recently, the RD Report, the Site currently contains a variety of hazardous substances, including benzene; tetrachloroethylene; trichloroethylene; 1,2-dichloroethane; and 1,1-dichloroethylene. Under existing conditions, the Site continues to release hazardous substances to the environment; specifically, through the groundwater, there exists a significant threat of continued release at the Site.

18. Pursuant to EPA's groundwater protection policy the groundwater at the Site is considered to be a drinking water source since the aquifer within a two-mile radius of the Site is used for a drinking water source. Continued migration of contaminated groundwater from the Site into the bedrock aquifer and further off-site, as the RD Report indicates is currently occurring, and/or increased development resulting in increased groundwater demand, may result in levels of these contaminants reaching residential wells downgradient of the Site. Specifically, if the selected remedy as modified by the ESD is not implemented, these two factors may result in levels of these contaminants in residential wells exceeding both EPA's acceptable carcinogenic risk range and Site Cleanup Standards. These

Cleanup Standards are based on Maximum Contaminant Levels (MCLs) promulgated pursuant to the Safe Drinking Water Act and establish levels of water quality which are deemed protective of human health.

19. The endangerment to public health and welfare and the environment caused by the actual and threatened release of hazardous substances from the Site includes, but is not limited to, the toxic effects upon human health through ingestion of contaminants found at the Site as specified below:

a. 1,2-Dichloroethane (1,2-DCA) is classified as a group B2 carcinogen, a probable human carcinogen which has been shown to cause cancer in animals. It has also been shown to be mutagenic. It is absorbed via the lungs and the gastrointestinal tract. Acute exposure causes central nervous depression, extreme weakness and dizziness. Subchronic studies show some effect on the liver. The MCL for 1,2-DCA in drinking water, promulgated by EPA's Office of Drinking Water, is five (5) ppb (parts per billion). The results of the pre-design sampling indicate that the mean level of 1,2-DCA in the groundwater at the Site is 21 ppb.

b. Benzene is classified as a group A carcinogen, a known human carcinogen, causing leukemia in exposed individuals.

The compound has also been shown to be mutagenic in humans and animals. It is absorbed via the lungs and the gastrointestinal tract. Chronic human exposure, including continuous exposure to low levels, can cause many adverse effects to the hematopoietic system, including myelocytic anemia, thrombocytopenia, leukopenia and eventually leukemia. Benzene has been shown to be fetotoxic and to cause embryolethality in experimental animals. An MCL of five (5) ppb for Benzene in drinking water has been promulgated by EPA. The results of the pre-design sampling indicate that the mean level of Benzene in the groundwater at the Site is 41.1 ppb.

c. 1,1-Dichloroethylene is classified as a group C carcinogen, a possible human carcinogen which is believed to cause cancer in animals, and is readily absorbed via the lungs and gastrointestinal tract. Acute exposure in animals has produced damage to the central nervous system, liver, kidney, heart and lungs. Chronic exposures produce liver damage. The MCL in drinking water for 1,1-Dichloroethylene is seven (7) ppb. The results of the pre-design sampling indicate that the mean level of 1,1-Dichloroethylene in the groundwater at the Site is 52 ppb.

d. Tetrachloroethylene, also known as perchloroethylene (PCE), is classified as a group B2 carcinogen, a probable

human carcinogen which has been shown to cause cancer in animals. It may be absorbed via the gastrointestinal tract. Based on animal studies, it is known that the targeted points of attack include the liver, kidney and central nervous system. The proposed MCL in drinking water for Tetrachloroethylene is five (5) ppb. The results of the pre-design sampling indicate that the mean level of Tetrachloroethylene in the groundwater at the Site is 35.7 ppb.

e. Trichloroethylene (TCE) is classified as a group B2 carcinogen, a probable human carcinogen which has been shown to cause cancer in animals. TCE is acutely toxic at high doses. Exposure to high concentrations can cause central nervous system depression, kidney and liver damage, painful breathing and cardiac arrhythmia. The effects caused by chronic exposure to TCE are primarily neurological and neuropsychiatric symptoms including headaches, dizziness, tremors, fatigue, nausea and vomiting. Chronic exposure can also cause liver and kidney damage. Ingestion is a significant route of exposure. The MCL in drinking water for TCE is five (5) ppb. The results of the pre-design sampling indicate that the mean level of TCE in the groundwater at the Site is 30.1 ppb.

20. The Remedial Action selected in the ROD, as modified by the ESD, addresses the actual and potential risks to the public health or welfare or the environment posed by the actual or potential releases of hazardous substances. Specifically, the extraction and treatment of groundwater in accordance with the ROD, ESD, and the Remedial Action Plan (RAP) is designed to control the migration of contaminated groundwater to other areas within the Site and to off-site areas, thus preventing the spread of contamination. In addition, it is expected to restore the groundwater in the vicinity of the source areas to drinking water standards.

V. CERCLA 106 DETERMINATIONS

21. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

22. Substances found at the Site, including benzene; tetrachloroethylene; trichloroethylene; 1,2-dichloroethane; and 1,1 dichloroethylene, are hazardous substances within the meaning of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

23. These hazardous substances have been released from the Site into the soil, groundwater, and surface water, and threaten to continue to be released from the Site into the groundwater and surface water.

24. The past, present, and future migration of hazardous substances from the Site is a release as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

25. The potential for future migration of hazardous substances from the Site poses a threat of a release as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

26. The release or threat of release at the Site may present an imminent and substantial endangerment to the public health or welfare or the environment.

27. The actions specified in this Order are necessary to protect public health and welfare and the environment.

28. Each of the Respondents is a person within the meaning of Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

29. Each of the Respondents is a liable party as defined in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a) and is liable under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

30. Clean Harbors of Natick, Inc. is liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a) as successor to the liabilities of Interex Corporation which accepted hazardous

substances for transport to and arranged for the disposal of hazardous substances at the Site.

31. Ethan Allen, Inc. is liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a) because it arranged for the disposal of hazardous substances at the Site.

VI. ORDER

32. Based on the foregoing, the Respondents are ORDERED to comply with the provisions set forth in this Order and its Appendices within the specified time periods.

VII. DEFINITIONS

33. Unless noted to the contrary, the terms of this Order shall have the meaning assigned to those terms by CERCLA. Whenever the terms listed below are used in this Order and its Appendices, the following definitions shall apply:

a. "Additional Work" shall mean additional response activities as described in Section XV of this Order.

b. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, et seq.

c. "Cleanup Standards" shall mean the numerical criteria respecting the degree of cleanup to be achieved in the groundwater at the Site as set forth in Part IV of the Remedial Action Plan.

d. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or legal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the end of the next working day.

e. "Design Documents" shall mean the construction drawings and technical specifications including bidding requirements and general requirements provided by EPA.

f. "EPA" shall mean the United States Environmental Protection Agency.

g. "Explanation of Significant Differences (ESD)" shall mean the Explanation of Significant Differences relating to the Site issued by EPA Region I on June 8, 1990, a copy of which is attached as Appendix I to this Order.

h. "Groundwater" shall mean water in a saturated zone or stratum beneath the surface of land or water, in accordance with the definition in Section 101(12) of CERCLA, 42 U.S.C. § 9601(12).

i. "Hazardous Substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

j. "Institutional Controls" shall mean the groundwater and land use restrictions and other regulations and controls developed pursuant to this Order and the RAP to maintain the integrity and prevent the unauthorized disturbance of any structures constructed at the Site as part of the Remedial Action or of any other feature existing presently or in the future at the Site, and to limit human and animal exposure to contaminants associated with the Site.

k. "Long-term Operation and Maintenance (Long-term O&M)" shall mean all activities required under the Operation and Maintenance Plan as approved or developed by EPA pursuant to this Order.

l. "NCP" shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. §

9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

m. "NHDES" shall mean the New Hampshire Department of Environmental Services.

n. "Paragraph" shall mean a portion of this Order identified by an arabic numeral.

o. "Performance Standards" shall mean the criteria respecting the degree and method of cleanup to be achieved at the Site, including all location, chemical, and action-specific applicable or relevant and appropriate standards, requirements, criteria and limitations identified in the ROD, as modified by the ESD, and the RAP or by EPA prior to completion of the Work and all other health or environmentally related numerical standards in the ROD, as modified by the ESD, and the RAP, that the Remedial Action and Work required by this Order must attain and maintain. Performance Standards include all Cleanup Standards.

p. "Record of Decision (ROD)" shall mean the EPA Record of Decision relating to the Site, and all attachments thereto, executed by the Regional Administrator, EPA Region I, on March 21, 1988.

q. "Remedial Action (RA)" shall mean those activities, except for Long-term Operation and Maintenance, to be undertaken by the Respondents to implement the final plans and specifications submitted by the Respondents pursuant to the Remedial Action Work Plan and any other Work Plan approved by EPA pursuant to this Order, including any additional activities required under Sections XIV, XV, XVIII, and XXI.

r. "Remedial Action Plan (RAP)" shall mean the statement of work set forth in Appendix II, and any modifications thereto in accordance with this Order, for implementation of the Site remedy pursuant to this Order.

s. "Response Costs" shall mean any costs incurred by the United States with respect to the Site pursuant to 42 U.S.C. § 9601 et seq., including direct costs, indirect costs, and accrued interest on costs incurred by the United States to perform or support response actions at the Site. Response costs include but are not limited to the costs of overseeing the Work, such as the costs of reviewing or developing plans, reports and other items pursuant to this Order and costs associated with verifying the Work.

t. "Section" shall mean a portion of this Order identified by a roman numeral and including one or more paragraphs.

u. "Site" shall mean the Keefe Environmental Services Superfund Site in Epping, New Hampshire.

v. "State" shall mean the State of New Hampshire, including the New Hampshire Department of Environmental Services.

w. "United States" shall mean the United States of America, including the United States Environmental Protection Agency.

x. "Work" shall mean all work or other activities or obligations required by this Order, including, but not limited to, the design, construction and implementation of the tasks described in the ROD, as modified by the ESD, and the RAP, and any schedules or plans required to be submitted pursuant thereto, and operation and maintenance of the remedial action. Work includes any activities in addition to those identified in the RAP that EPA determines are necessary to attain Performance and Cleanup Standards.

y. "Work Plan" shall mean the work plan(s) for implementation of the Work required pursuant to this Order and the RAP and any modifications thereto in accordance with this Order and the RAP.

VIII. NOTICE OF INTENT TO COMPLY

34. Each Respondent shall provide, not later than five (5) days after the effective date of this Order, written notice to EPA stating whether it will comply with the terms of this Order. If any Respondent does not unequivocally commit to perform the Remedial Action as provided by this Order, it shall be deemed to have violated this Order and to have failed and refused to comply with this Order. The written notice required by this Paragraph shall set forth, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by each Respondent under Section 106(b) and 107(c)(3) of CERCLA.

IX. PARTIES BOUND

35. This Order shall apply to and be binding upon the Respondents and upon their directors, officers, employees, agents, representatives, successors, and assigns. The Respondents are jointly and severally responsible for carrying out all activities required by this Order. No change in the ownership or corporate status, and no acquisition of any Respondent(s) shall alter the responsibilities under this Order. The Respondents shall provide a copy of this Order to any prospective owners or successors before property rights, stock, or assets are transferred. The Respondents shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained to perform any work under this Order,

within five (5) days after the effective date of this Order or on the date such services are retained, whichever date occurs later. The Respondents shall also provide a copy of this Order to each person representing any of the Respondents with respect to the Site or the Work and shall condition all contracts and subcontracts entered hereunder upon performance of the Work in conformity with the terms of this Order. Notwithstanding the terms of any contract, the Respondents are responsible for compliance with this Order and for ensuring that their contractors, subcontractors and agents comply with this Order and perform any Work in accordance with this Order. With regard to the activities undertaken pursuant to this Order, each contractor and subcontractor shall be deemed to be related by contract to the Respondents within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

X. JOINT AND SEVERAL OBLIGATIONS

36. All obligations imposed by this Order are joint and several. The failure of one Respondent to comply with all or any part of this Order shall not in any way excuse or justify noncompliance by the other Respondent, including but not limited to the failure to perform all obligations of the defaulting Respondent.

XI. INCORPORATION OF DOCUMENTS

37. All appendices and attachments to this Order are incorporated into and enforceable under this Order. In addition, the Remedial Action Work Plan (RA Work Plan) and associated schedules developed pursuant to the RAP, upon their approval by EPA, as well as any other plans, specifications, schedules, and other documents required by the terms of this Order and approved or developed by EPA in accordance with the provisions of this Order, shall be incorporated into and enforceable under this Order.

XII. THE WORK

38. The Respondents shall finance and perform the Work in accordance with this Order, including the RAP and its attachments, and all terms, conditions, and schedules set forth therein or developed thereunder.

39. EPA may modify the RAP if such modification is determined by EPA to be necessary to attain the Performance Standards for the protection of public health, welfare or the environment. Upon written consent of the EPA Regional Administrator, such a modification to the RAP shall become enforceable under this Order.

40. All Remedial Action Work to be performed by the Respondents pursuant to this Order shall be performed under the direction and supervision of a qualified contractor.

41. As required in the RAP, the Respondents shall develop a draft RA Work Plan in accordance with the ROD, as modified by the ESD, and the Design Documents, for submittal to EPA and NHDES.

42. In accordance with the RAP, the Respondents shall implement the work detailed in the RA Work Plan upon approval of the RA Work Plan by EPA pursuant to the procedures set forth in Section XVIII of this Order and of Part V(B) of the RAP. Unless otherwise directed by EPA, the Respondents shall not commence field activities until approval by EPA of the Work Plan. Upon approval by EPA, the Work Plan shall be deemed incorporated into and made an enforceable part of this Order.

43. All Work shall be conducted in accordance with the NCP, the EPA Superfund Remedial Design and Remedial Action Guidance, any additional guidance provided by EPA, and the requirements of this Order, including the standards, specifications and schedule contained in the RAP and the RA Work Plan.

44. Neither the RAP nor any Work Plan approved pursuant to this Order constitutes a warranty or representation of any kind by EPA that adherence to the RAP or any such Work Plan will

achieve the Cleanup or Performance Standards set forth in the ROD, as modified by the ESD, and in the RAP; nor shall EPA be precluded from seeking performance of all terms and conditions of this Order, including achieving the applicable Cleanup or Performance Standard or Standards.

45. The Work performed by the Respondents pursuant to this Order must, at a minimum, satisfy all applicable or relevant and appropriate federal and state standards, requirements, criteria or limitations as specified in the ROD, with specific reference to the federal requirements set forth in Table VI of the ROD and the state requirements set forth in Appendix D to the ROD, and as required under Section 121(d) of CERCLA, including laws and regulations relating to occupational safety and health.

46. The Work performed by the Respondents pursuant to this Order must attain all Cleanup and Performance Standards specified in Part IV of the RAP.

47. The Respondents shall obtain all permits or approvals necessary for the Work and shall submit timely applications and requests for such permits and approvals. Notwithstanding any other provision in this Order, no federal, state, or local permit(s) or approval(s) shall be required for any Work conducted entirely on-site.

48. The Respondents shall include in all contracts or subcontracts entered into for performance of the Work, provisions stating that such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with all applicable laws and regulations.

49. This Order is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

50. The United States shall not be held out as a party to any contract entered into by or on behalf of the Respondents in carrying out the Work.

51. The Respondents shall cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, the Respondents shall participate in preparation of such information for distribution to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

XIII. COMMUNICATION AND COORDINATION AMONG RESPONDENTS

52. Within ten (10) days after the effective date of this Order, the Respondents shall designate a coordinator who shall be responsible on their behalf for administration of reports and

actions called for by this Order and the RAP and shall notify EPA in writing of the name, address, and telephone number of the coordinator. The coordinator shall serve as the Respondents' representative, and receipt by the coordinator of any notice, report, or other communication pursuant to this Order shall be deemed to be receipt by all of the Respondents. The Respondents shall give EPA at least ten (10) days advance notice, in writing, of any change of their coordinator and shall notify EPA in writing within three (3) working days of any change in the coordinator's address or telephone number.

53. Within twenty-one (21) days after the effective date of this Order, the Respondents shall submit to EPA for approval a Communication and Coordination Plan (CCP) which specifies the requirements and defines the procedures by which the Respondents will communicate and coordinate with one another in carrying out the requirements of this Order. Each Respondent, by a duly authorized representative, shall sign the CCP prior to its submission to EPA. Failure of any Respondent to sign the CCP, as here provided, will constitute a violation of this Order by that individual Respondent. The CCP shall include at a minimum the following:

a. Communication Strategy. The Respondents shall specify how the designated coordinator and the individual Respondents will communicate and disseminate information

relative to this Order. The name, title, address and telephone number of the primary contact person for each Respondent shall be included in the Communication Strategy.

b. Coordination of Efforts. The Respondents shall describe with specificity how the technical, financial, and administrative requirements of this Order are to be coordinated and distributed between and performed by the Respondents. The CCP shall describe the obligations of each Respondent in full.

54. The Respondents shall submit all proposed changes or amendments to the CCP to EPA for approval.

55. The CCP, as approved by EPA, shall be incorporated into and enforceable under this Order. The obligations of the Respondents under the CCP shall be joint and several, and noncompliance by one Respondent shall not in any way excuse or justify noncompliance by the other Respondent, including, but not limited to, the failure to perform all obligations of the defaulting Respondent.

XIV. EPA PERIODIC REVIEW

56. Under Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and applicable regulations, EPA may review the Site to assure that the Work performed pursuant to this Order adequately protects human health and the environment. Until such time as EPA notifies Respondent that the Work has been satisfactorily completed, the Respondents shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA in order to permit EPA to conduct the review under Section 121(c) of CERCLA. As a result of any review performed under this Paragraph, the Respondents may be required to perform Additional Work or to modify Work previously performed.

XV. ADDITIONAL WORK

57. In the event that EPA determines that additional response activities are necessary to meet the Cleanup or Performance Standards or to protect human health and the environment, EPA shall notify the Respondents' coordinator that such Additional Work is necessary.

58. Unless otherwise directed by EPA, within thirty (30) days of receipt of notice from EPA that Additional Work is necessary, the Respondents shall submit for approval by EPA, after reasonable opportunity for review and comment by NHDES, a Work Plan for such Additional Work. The Work Plan shall conform to the applicable requirements of Paragraph 41 of this Order and

Part V(B) of the RAP. Upon approval of the Work Plan pursuant to this Order, the Respondents shall implement the Work Plan for Additional Work in accordance with the schedule contained therein.

XVI. REMEDIAL PROJECT MANAGER

59. The EPA will appoint a Remedial Project Manager (RPM) who shall have the authority to be on the Site at all times when work is being undertaken pursuant to this Order.

60. The RPM shall have the authority vested by the NCP, 40 CFR 300 et seq., or any similar provisions in future amendments or revisions to the NCP. The RPM's authority shall, at a minimum, extend to performing the following activities:

a. taking samples or directing the type, quantity and location of samples to be taken by the Respondents consistent with Appendix II;

b. halting, conducting, or directing any of the Work and taking any necessary response action when he or she determines that conditions at the Site may present an endangerment to public health or welfare or the environment;

c. observing, taking photographs, or making such other reports on the progress of the work as the RPM deems appropriate;

d. reviewing records, files, and documents relevant to this Order; and

e. making, directing, or authorizing field modifications in the studies, techniques, procedures or designs utilized in carrying out this Order which are consistent with the objectives of this Order and necessary to the completion of the Work.

61. The absence of the RPM from the Site shall not be cause for stoppage of work.

62. The employees, agents, consultants, contractors, and authorized representatives of EPA and the State shall also have the authority to be on the Site at all times when the Work is being performed and to engage in activities relating to enforcement of this Order including, but not limited to the following:

a. observing the Respondents' performance of the Work;

b. taking photographs and making such other reports as EPA or NHDES deems appropriate;

c. taking samples; and

d. reviewing documents relevant to this Order.

XVII. PROGRESS REPORTS

63. The Respondents shall submit to EPA written monthly progress reports which include the following:

a. a description of the actions which have been taken toward achieving compliance with this Order during the previous month;

b. all results of sampling and tests and all other data received by the Respondents during the course of the Work during the previous month;

c. all plans developed and procedures performed under the RAP or any EPA-approved Work Plan during the previous month;

d. a description of all actions, data and plans which are scheduled for the next month and any other information relating to the progress of activities that is necessary to assess compliance under this Order;

e. information regarding percentage of completion, delays encountered or anticipated that may affect the future schedule for implementation of the RAP or any Work Plan approved by EPA, and a description of efforts made to mitigate such delays; and

f. quality control reports and related field logbooks, certifying that all activities have been performed as approved.

64. The monthly progress reports described in Paragraph 63 above are to be submitted to EPA by the tenth day of every month following the effective date of this Order until the completion of the Remedial Action. After the completion of the Remedial Action, the Respondents shall submit reports on the tenth day of each January, April, July, and October until all Work is completed, covering the preceding calendar quarter. Such quarterly reports shall be consistent with the requirements of

the Operation and Maintenance Plan as approved or developed by EPA pursuant to the RAP.

65. If a progress report is deemed to be incomplete or otherwise deficient, EPA may notify the Respondents of the deficiency. The Respondents shall make the necessary changes in accordance with the notice of deficiency and resubmit that progress report within ten (10) working days after receipt of the notice of deficiency.

66. If EPA determines that a resubmitted progress report is deficient, then the Respondents shall be deemed to be out of compliance with this Order.

XVIII. OTHER PLANS, REPORTS, AND ITEMS REQUIRING AGENCY APPROVAL

67. After review of any deliverable, plan, report or other item which is required to be submitted for review and approval pursuant to this Order, EPA may: (a) approve the submission; (b) approve the submission with modifications; (c) disapprove the submission and direct the Respondents to resubmit the document after incorporating EPA's comments; (d) disapprove the submission and assume responsibility for performing all or any part of the response action; (e) take any other action specified in this Order or in the RAP; or (f) take any action EPA is legally authorized to take and deems appropriate. As used in this Order,

the terms "approval by EPA," "EPA approval," or similar term shall mean the action described in subparagraph (a) or (b) of this Paragraph.

68. If EPA disapproves any deliverable, plan, report, or other item required to be submitted to EPA for approval pursuant to this Order, except for a progress report covered by Section XVII, and directs the Respondents to correct the deficiencies, then the Respondents shall address each EPA comment contained in the notice of disapproval and re-submit the previously disapproved item with the required changes within twenty (20) days after the receipt of notice of disapproval, unless expressly specified otherwise in this Order, the RAP, or EPA's notice of disapproval. Notwithstanding the notice of disapproval, the Respondents shall proceed to take any action required by any nondeficient portion of the submission unless otherwise directed by EPA.

69. In the event of EPA approval, EPA approval with modifications, or EPA disapproval and substitution of its own plan, report, directive or other item, the Respondents shall perform all actions required by the plan, report, directive, or other item, as approved, modified, or developed by EPA.

70. If any re-submitted deliverable, plan, report, or other item is not approved by EPA, then the Respondents shall be deemed to be out of compliance with this Order.

XIX. SITE ACCESS AND INSTITUTIONAL CONTROLS

71. To the extent that any area other than the Site where Work is to be performed under this Order is owned or controlled by persons other than the Respondents, the Respondents shall use best efforts to secure from such persons access for the Respondents, the United States and the State, including EPA and NHDES, and their employees, agents and authorized representatives, contractors, or consultants, as necessary to effectuate implementation of this Order. For purposes of this Paragraph, "best efforts" includes, but is not limited to, seeking judicial assistance, the payment of money in consideration of access and the acquisition of all property interests necessary for performance of the Work. If access is not obtained within forty-five (45) days of the effective date of this Order, the Respondents shall promptly notify EPA.

72. Lack of access shall not excuse or justify failure to perform any activity or to meet any deadline not requiring or directly dependent upon such access.

73. The Respondents shall use best efforts, as defined in Paragraph 71 above, to obtain deed restrictions and other

institutional controls which will ensure non-interference with the performance of the Work and which, consistently with the ROD, as modified by the ESD, will restrict the use of the groundwater below the Site after completion of the Remedial Action.

74. Notwithstanding any provision of this Order, the United States retains all of its access authorities and rights under CERCLA and any other applicable statutes and regulations.

XX. COMPLETION OF WORK

75. Within thirty (30) days of concluding that the Work has been performed fully and that all Performance Standards have been attained, the Respondents shall notify EPA, by submitting a written report by a registered professional engineer certifying that all such activities have been completed and Performance Standards attained, in full satisfaction of the requirements of this Order. If EPA determines that the Work, including any Additional Work, or any portion thereof has not been completed in accordance with this Order, EPA shall notify the Respondents in writing of the activities that must be done to complete the Work and shall set forth in the notice a schedule for performance of such activities. The Respondents shall perform all activities described in the notice in accordance with the specifications and schedules established therein.

XXI. ENDANGERMENT AND EMERGENCY RESPONSE

76. In the event of any action or occurrence during the performance of the Work which causes or threatens to cause a release of Hazardous Substances or which may present an immediate threat to public health or welfare or the environment, the Respondents shall immediately take all appropriate action to prevent, abate, or minimize the threat, and shall immediately notify EPA's RPM and the Regional Duty Officer of the Emergency Planning and Response Branch, EPA Region I, telephone (617) 223-7265. The Respondents shall take such action in consultation with EPA's RPM and in accordance with all applicable provisions of the Order, including but not limited to the Health and Safety Plan developed pursuant to the RAP and approved thereunder. To the extent that the Health and Safety Plan does not cover the particular situation, the Respondents shall develop and submit a response plan to EPA within ten (10) days of the potentially endangering action or occurrence. The provisions of Section XVIII apply to the submission of any such response plan, except that the time period for resubmission after disapproval shall be five (5) days, unless extended by EPA.

77. In the event that the Respondents fail to take appropriate response action as required by this Section, and EPA takes that action instead, the Respondents shall reimburse EPA for all costs of the response action not inconsistent with the NCP. The Respondents shall pay the response costs in the manner

described in Section XXVII of this Order, within thirty (30) days of the Respondents' receipt of demand for payment of the costs incurred.

78. Nothing in Paragraph 77 above shall be deemed to limit any authority of the United States to take, direct, or order all appropriate action to protect human health and the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XXII. ACCESS TO INFORMATION

79. The Respondents shall provide to EPA, upon request, all documents and information within their possession and/or control, or that of their contractors or agents relating to activities at the Site or to the implementation of this Order, including sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to remedial activities. The Respondents shall also make available to EPA for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

80. All data, factual information, or documents submitted to EPA by or on behalf of the Respondents may be made available for public inspection unless the Respondents demonstrate that the

data, factual information, or documents satisfy the requirements of 42 U.S.C. § 9604(e)(7)(E) and (F).

XXIII. QUALITY ASSURANCE; SAMPLING

81. While conducting all sample collection and analysis activities required under this Order, the Respondents shall, at a minimum, comply with the quality assurance and quality control requirements set forth in the RAP, including adherence to the quality assurance, quality control, and chain of custody procedures described in the EPA guidance documents referenced in Attachment I to the RAP. In addition, to provide quality assurance and maintain quality control, the Respondents shall:

a. use a laboratory which has a documented Quality Assurance Program that complies with EPA guidance document QAMS-005/80.

b. ensure that EPA personnel and EPA's authorized representatives are allowed access to the laboratory and personnel used by the Respondents for analyses.

c. ensure that the laboratory used by the Respondents for analyses operates according to a method or methods deemed satisfactory to

EPA and submits all protocols to be used for analyses to EPA at least thirty (30) days before beginning analysis.

d. comply with the Quality Assurance/Quality Control plans prepared in accordance with the RAP.

82. Upon request, the Respondents shall provide EPA with split samples of any samples collected in accordance with any requirement of this Order or any work performed under this Order. Not less than twenty eight (28) days in advance of any sampling pursuant to this Order, the Respondents shall notify EPA of the sampling date, sampling media, and numbers of samples to be taken from each medium. This provision shall not be construed as limiting the authority of EPA to collect samples and information under applicable regulatory authority.

83. The Respondents shall make available to EPA the results of all sampling and/or tests or other data generated by the Respondents with respect to the implementation of this Order, and shall submit these results in monthly progress reports as described in Section XVII.

XXIV. RETENTION OF RECORDS

84. Until ten (10) years after completion of the Work, each of the Respondents shall preserve and retain all records and documents in its possession or control, including the documents in the possession or control of their contractors and agents on and after the effective date of this Order that relate in any manner to the Site. At the conclusion of this document retention period, the Respondents shall notify the United States at least ninety (90) days prior to the destruction of any such records or documents, and upon request by the United States, the Respondents shall deliver any such records or documents to EPA.

85. Until ten (10) years after completion of the Work, Respondents shall preserve, and shall instruct their contractors and agents to preserve, all documents, records, and information of whatever kind, nature or description relating to the performance of the Work. Upon the conclusion of this document retention period, the Respondents shall notify the United States at least ninety (90) days prior to the destruction of any such records, documents or information, and, upon request of the United States, the Respondents shall deliver all such documents, records and information to EPA.

86. Within seven (7) days after the effective date of this Order, the Respondents shall submit a written certification to EPA's RPM that they have not altered, mutilated, discarded,

destroyed or otherwise disposed of any records, documents or other information relating to their potential liability with regard to the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site. The Respondents shall not dispose of any such documents without prior approval by EPA. The Respondents shall, upon EPA's request and at not cost to EPA, deliver the documents or copies of the documents to EPA.

XXV. DELAY IN PERFORMANCE

87. Any delay in performance of any Work or requirement under this Order that, in EPA's judgment, is not properly justified by the Respondents under the terms of this Section shall be considered a violation of this Order. Any delay in performance of any portion of the Work or any requirement of this Order shall not affect the Respondents' obligations to fully perform all obligations under the terms and conditions of this Order.

88. The Respondents shall notify EPA of any delay or anticipated delay in achieving compliance with any requirement of this Order. Such notification shall be made by telephone to EPA's RPM within 48 hours after the Respondents first knew or should have known that an event might cause delay. Within five (5) work days after notifying EPA by telephone, the Respondents shall provide written notification fully describing the nature of

the delay, the reasons the delay is beyond the control of the Respondents, any defenses under Section 106(b)(1) available to the Respondents for failing to comply with any requirements of this Order, and a schedule for implementing the measure(s) that will be taken to mitigate the effect of the delay. The Respondents shall adopt all reasonable measures to avoid or minimize any such delay. Increased costs or expenses associated with implementation of the activities required under this Order shall not be considered circumstances beyond the control of the Respondents.

XXVI. ASSURANCE OF ABILITY TO COMPLETE WORK

89. The Respondents shall demonstrate their ability to complete the Work and to pay all claims that arise from the performance of the Work by obtaining and presenting to EPA within thirty (30) days after the effective date of this Order one of the following: (1) a surety bond guaranteeing performance of the Work; (2) a letter of credit equaling the total estimated cost of the Work; (3) a guarantee by a third party in an amount no less than the total estimated cost of the Work; or (4) internal financial information to allow EPA to determine that the Respondents have sufficient assets available to perform the Work. If the Respondents seek to demonstrate the ability to complete the Work through a guarantee by a third party, they must provide financial information regarding the guarantor's net worth, cash flow, total liabilities, and current rating for their most recent

bond issuance sufficient to demonstrate to EPA's satisfaction that the guarantor(s) has(have) the financial ability to finance completion of the Work. This third party guarantee must be in the form of a binding commitment to finance completion of the Work and is subject to EPA approval. The Respondents shall resubmit annually, on the anniversary of the effective date of this Order, the financial information required under this Paragraph. If EPA determines that such financial information is inadequate, the Respondents shall, within thirty (30) days after receipt of EPA's notice of such determination, obtain and present to EPA for approval one of the other three forms of financial assurance listed above. The Respondents' inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Order.

90. At least seven (7) days prior to commencing any work at the Site pursuant to this Order, the Respondents shall submit to EPA a certification that the Respondents or their contractors and subcontractors have adequate insurance coverage or have indemnification for liabilities for injuries or damages to persons or property which may result from activities to be conducted by or on behalf of the Respondents pursuant to this Order. The Respondents shall ensure that such insurance or indemnification is maintained for the duration of the Work required by this Order.

XXVII. REIMBURSEMENT OF RESPONSE COSTS

91. The Respondents shall reimburse EPA, upon written demand, for all Response Costs incurred by the United States in overseeing Respondent's implementation of the requirements of this Order or in performing work required by this Order which the Respondents fail to perform in compliance with this Order, including, but not limited to, the following direct and indirect costs: time and travel of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring costs, costs of collection and analysis of split samples, costs of inspecting Remedial Action activities, costs of Site visits, costs arising out of disputes relating to this Order, costs of review and approval or disapproval of reports, costs associated with community relations, costs incurred in connection with obtaining Site access, costs of performing any work the Respondents are required to perform under this Order and interest in accordance with Paragraph 92 below.

92. The Respondents shall, within thirty (30) days of receipt of each EPA demand for payment of costs pursuant to Paragraph 91, remit a certified cashier's check for the amount of those costs. Interest shall accrue from the date of the expenditure. The interest rate is the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13.

93. Checks shall be payable to the "EPA Hazardous Substances Superfund" and shall include the name of the Site, the Site identification number, the account number and the title of this Order. Checks shall be forwarded to:

U.S. Environmental Protection Agency, Region I
Attention: Superfund Accounting
P.O. Box 360197M
Pittsburg, Pennsylvania 15251

94. The Respondents shall send copies of each check and transmittal letter to EPA's RPM.

XXVIII. UNITED STATES NOT LIABLE

95. The United States, by issuance of this Order, assumes no liability for any injuries or damages to persons or property resulting from acts or omissions by the Respondents or their directors, officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order. Neither EPA nor the United States may be deemed to be a party to any contract entered into by the Respondents or their directors, officers, employees, agents, successors, assigns, contractors, or consultants in carrying out any action or activity pursuant to this Order.

XXIX. NOTIFICATIONS AND SUBMITTALS

96. All notifications and submittals to EPA pursuant to this Order, except as otherwise provided herein, shall be made to:

Chester Janowski
U.S. Environmental Protection Agency
New Hampshire Superfund Section
JFK Federal Building HSN-CAN5
Boston, MA 02203-2211

unless EPA notifies the Respondents' coordinator in writing of a change. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules or any other writing submitted by the Respondents shall be construed as relieving the Respondents of their obligation to obtain such formal approvals as may be required herein.

XXX. ENFORCEMENT AND RESERVATIONS

97. Violation of this Order shall be enforceable pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606. Failure to comply may subject the Respondents to civil penalties and/or punitive damages in an amount up to three times the amount of any costs incurred by the United States as a result of such failure, as provided in Sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). Nothing herein shall preclude EPA from taking such other actions as may be necessary to protect the public health or welfare or the environment or from recovering the costs thereof.

98. EPA reserves the right to seek in the filed action U.S. v. Clean Harbors of Natick, Inc. et al, Civil Action No. 89-109-L, (D. NH) the recovery of any response costs incurred by the United States related to this Order and not previously reimbursed by the Respondents, as well as any other past and future costs incurred by the United States in connection with response activities conducted under CERCLA at the Site. This reservation shall include the cost of oversight, indirect costs, costs for compiling the cost documentation to support oversight cost demand, interest as provided in Section 107(a) of CERCLA and other law, and any other costs referenced in Paragraph 91.

99. Notwithstanding any other provision of this Order, at any time during the response action, EPA may perform its own studies, complete the response action or any portion of the response action as provided in CERCLA and the NCP, and seek reimbursement from the Respondents for its costs, or seek any other appropriate relief.

100. Nothing herein shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring the Respondents to perform additional activities in the future pursuant to CERCLA or any other applicable law. The

Respondents shall be liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), for the costs of any such additional actions.

101. Notwithstanding any provision of this Order, the United States hereby retains all of its information gathering, inspection and enforcement authorities and rights under CERCLA, RCRA and any other applicable statutes or regulations.

102. If any court of competent jurisdiction issues an order that invalidates any provision of this Order or finds that the Respondents have sufficient cause not to comply with one or more provisions of this Order, the Respondents shall remain bound to comply with all provisions of this Order not expressly invalidated by the court's order.

XXXI. NO RELEASE OF LIABILITY

103. Nothing herein shall constitute or be construed as a satisfaction or release of any person from liability for any conditions or claims arising as a result of past, current, or future operations at the Site, including, but not limited, to any and all claims of the United States for money damages and interest under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), or any other applicable statute, or the common law.

104. Notwithstanding compliance with the terms of this Order, the Respondents may be required to take such further

actions as may be necessary to protect public health or welfare or the environment.

XXXII. NO PREAUTHORIZATION

105. Nothing in this Order shall constitute or be construed as preauthorization of a CERCLA claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or § 300.700 of the NCP.

XXXIII. OPPORTUNITY TO CONFER

106. Within five (5) days of the Respondents' receipt of this Order, the Respondents may request a conference with EPA to be held on June 22, 1990 at 10:00 A.M. at EPA's regional offices. This conference may address any matter pertinent to this Order, including its applicability, the factual determinations upon which it is based, the findings regarding imminent and substantial danger, the appropriateness of any actions which the Respondents are ordered to take, or any other relevant and material issues or contentions which they may have regarding this Order. At any time prior to such a conference, the Respondents may submit written statements or comments on any matter pertinent to this Order. The Respondents may appear in person or by an attorney or other representative at any conference held at their request. Any request for a conference or other documents offered pursuant to this Paragraph should be submitted to:

Elissa Tonkin
Office of Regional Counsel
United States Environmental Protection Agency
JFK Federal Building RRC-2203
Boston, Massachusetts 02203-2211
Telephone: (617) 565-3445.

XXXIV. ADMINISTRATIVE RECORD

108. Upon request by EPA, the Respondents shall submit to EPA all documents related to the remedy for possible inclusion in the administrative record.

XXXV. EFFECTIVE DATE AND TERMINATION BY EPA

109. This Order shall be effective eighteen (18) days after the Order is signed by the Regional Administrator. All times for performance of ordered activities shall be calculated from this effective date.

110. Any or all of the requirements of this Order may be terminated or extended against any or all of the Respondents by letter signed by the Regional Administrator.

June 12, 1990
Date of Issuance

JOP

By: Julie Belaga
Regional Administrator
U.S. Environmental Protection Agency
Region I

APPENDIX I

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J. F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

DECLARATION FOR THE EXPLANATION OF SIGNIFICANT DIFFERENCES

SITE NAME AND LOCATION

Keefe Environmental Services Superfund Site
Epping, New Hampshire

STATEMENT OF PURPOSE

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the Keefe Environmental Services Superfund site (the Site) in Epping, New Hampshire.

STATUTORY BASIS FOR ISSUANCE OF ESD

Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), requires that, if any remedial or enforcement action is taken under Section 106 of CERCLA after adoption of a final remedial action plan, and if such action differs in any significant respects from the final plan (i.e. in scope, performance or cost), the United States Environmental Protection Agency (EPA) shall publish an explanation of the significant differences and the reasons why such changes were made. Current EPA guidance (OSWER Directive 9355.3-02) further provides that issuance of an ESD is appropriate where the agency determines the need for changes to the ROD which are significant but which do not fundamentally alter the overall remedy. In the present case, because the required adjustments to the ROD do not fundamentally alter the selected remedy for the Site, this ESD is properly being issued.

In accordance with Section 117(d) of CERCLA, this ESD will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the Epping Public Library in Epping, New Hampshire.

OVERVIEW OF ESD

On March 21, 1988, EPA issued a final remedial action plan in the form of a Record of Decision (the ROD) for the Site. The ROD called for a comprehensive remedy that included both a source

control component to address soil contamination and a management of migration component to address groundwater contamination.

Following the issuance of the ROD, EPA and the New Hampshire Department of Environmental Services (NHDES) conducted Pre-Remedial Design activities which included additional soil and groundwater sampling to more accurately define the volumes of waste to be treated. These most recent sampling analysis results revealed changes to the extent of contamination at the Site as determined by the Remedial Investigation. As a result of these changes, EPA has determined that certain adjustments to the remedy described in the ROD are necessary. The three major adjustments are summarized below.

First, and consistently with the ROD, the vacuum extraction technology described in the ROD will not be implemented to treat Site soils because the new data demonstrates that cleanup standards have already been achieved in Site soils. The other two significant adjustments to the remedy relate to the groundwater treatment system to be implemented. While the technology to be used has not changed, the scope of the system will be extended to capture contamination which has migrated further offsite. In addition, certain contaminants which are trapped in extremely dense soils, and which are believed not to pose any significant environmental or health risks, will not be removed. Rather, levels of contaminants in this dense till will be monitored to ensure the protectiveness of the remedy.

This ESD is being issued to explain or clarify these modifications to the remedy set forth in the ROD.

DECLARATION

For the foregoing reasons, by my signature below, I approve the issuance of an Explanation of Significant Differences for the Keefe Environmental Services Superfund Site in Epping, New Hampshire, and the changes stated therein.

June 8, 1990
Date

Julie Belaga
Regional Administrator
U.S. EPA, Region I

EXPLANATION OF SIGNIFICANT DIFFERENCES
KEEFE ENVIRONMENTAL SERVICES SUPERFUND SITE
EPPING, NEW HAMPSHIRE

I. INTRODUCTION

A. Site Name and Location

Site Name: Keefe Environmental Services Superfund Site

Site Location: Town of Epping, Rockingham County, New Hampshire

B. Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency

Support Agency: New Hampshire Department of Environmental Services

C. Legal Authority

Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), requires that, if any remedial or enforcement action is taken under Section 106 of CERCLA after adoption of a final remedial action plan, and if such action differs in any significant respects from the final plan (i.e. in scope, performance or cost), the United States Environmental Protection Agency (EPA) shall publish an explanation of the significant differences and the reasons such changes were made. On March 21, 1988, EPA issued a final remedial action plan in the form of a Record of Decision (the ROD) for the Keefe Environmental Services Superfund Site (the Site). Following the issuance of the ROD, EPA and the New Hampshire Department of Environmental Services (NHDES) initiated Pre-Remedial Design activities which included additional soil and groundwater sampling to more accurately define the volumes of waste to be treated. These most recent sampling analysis results revealed changes to the extent of contamination at the Site as determined by the Remedial Investigation. As a result of these changes, EPA has determined that certain adjustments to the remedy described in the ROD are necessary. Accordingly, this Explanation of Significant Differences (ESD) is being issued.

In accordance with Section 117(d) of CERCLA, this ESD will become part of the Administrative Record which is available for public review at both the EPA Region I

Record Center in Boston, Massachusetts and the Epping Public Library in Epping, New Hampshire.

II. SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

A. Site History and Contamination Problems

The Site is located in a semi-rural area just off Exeter Road (Old Rte. 101) approximately two miles southeast of the municipal center of Epping, New Hampshire. Keefe Environmental Services, Inc. (KES) operated the Site as a chemical waste storage facility from 1978 to 1981, when KES filed for bankruptcy and the Site was abandoned. The Site was listed on the National Priorities List in October 1981.

During its operation, the facility consisted of drum storage areas, large storage tanks, equipment shelters and a bulking area. A 700,000 gallon capacity, synthetically-lined waste lagoon was also installed on the Site. After the Site was abandoned, EPA and NHDES (then known as NHWSPCC) performed several emergency removal actions which included providing site security, pumping down the lagoon, drum stabilization, drum removal and lagoon decommissioning.

In January 1988, a Remedial Investigation Report (RI), Supplemental Remedial Investigation Report (Supplemental RI) and Feasibility Study (FS) were completed and issued for public review and comment. The Site Characterization performed as part of the RI and Supplemental RI delineated four potential areas of soil contamination and groundwater contamination in the overburden and shallow bedrock aquifers on-site. Health risks associated with conditions at the Site were evaluated for ingestion of contaminated well water, dermal contact and subsequent ingestion of contaminated surface soils, and dermal contact with surface waters.

At the time of the investigations, no contaminants were detected in water drawn from residential wells adjacent to the Site. Therefore, current risks associated with drinking this water were not calculated. However, if contaminated groundwater were to migrate off-site and into residential wells at contaminant levels equal to the levels found on-site, the incremental risk associated with drinking the residential well water would be 1.1×10^{-3}. This risk level exceeds EPA's acceptable carcinogenic risk range of 10^{-4} to 10^{-6} for Superfund sites. Assuming unrestricted use of the Site in the future, the cancer risk associated with drinking the groundwater below the Site would range from 1.1×10^{-3} to as high as 6.6×10^{-2}, substantially in excess of EPA's

acceptable risk range. Cancer risks associated with dermal contact and subsequent ingestion of contaminated soils, as well as contact with contaminated surface waters were determined to be within a range of 10^{-8} to 10^{-10} for both present and future site use. Although these risks fall within EPA's acceptable range, it was determined that soil remediation was necessary to attain a groundwater cleanup level that would be protective of public health and the environment within a reasonable time frame.

On March 21, 1988, following the issuance of EPA's proposed plan and the close of the ensuing public comment period, EPA issued a ROD which described the selected cleanup alternative to be implemented at the Site.

B. Summary of the Selected Remedy

The selected remedy for the Site, which was embodied in the ROD, included both a source control and a management of migration component.

1. Source Control Component

For source control, EPA selected in-situ (in place) treatment using vacuum extraction technology. Vacuum extraction involves the removal of unsaturated soil source contamination by developing a vacuum within the soil matrix so as to induce air and contaminant flow through the pore structure. As soil gas migrates through the pore spaces, mass transfer between the trapped residual unsaturated contamination and the air occurs, thereby releasing the contamination. This facilitates contaminant removal without soil excavation.

The vacuum extraction process requires vapor extraction wells, vapor collection headers, vacuum blowers or pumps, and vapor collection systems (condensers) and/or vapor treatment (carbon adsorption) equipment. Although somewhat innovative, the technology has been employed at several other sites .

Four possible locations were considered for vacuum extraction, with the depth to ground water in these areas varying from 7-10 feet in the central portion of the Site to 3-5 feet in the southwestern corner of the Site. A maximum area of 150,000 square feet was estimated to require vacuum extraction.

The extracted gas would contain high levels of volatile organic compounds (VOCs) and moisture. Most of the moisture would be removed by a sloping header followed by a water

cooled condenser which would remove any remaining moisture and some VOCs. Water for the condenser would be supplied by the ground water treatment system recommended for the management of migration alternative. Moisture collected in the condenser would be returned to the groundwater treatment system for treatment.

2. Management of Migration Component

The management of migration component of the selected remedy consists of pumping and treating the contaminated groundwater and discharging the treated water back into the aquifer. This alternative entails extracting the contaminated groundwater from both the overburden and bedrock aquifers, treating it on-site using air stripping, filtration and carbon adsorption, and then discharging it back into the ground. The air stripping step would be preceded by a metals removal process involving coagulation/precipitation in a clarifier followed by neutralization. The purpose of this would be to remove iron from the groundwater prior to air stripping to prevent operational problems caused by the iron oxidizing and precipitating out onto the tower packing.

Groundwater from the bedrock would be extracted using the existing 115-foot deep groundwater extraction wells CW-3C and CW-5C. In addition, overburden well CW-FA and two 2-foot wide collection trenches, with a combined length of 2300 feet, would be used to extract water from the overburden aquifer. The combined groundwater extraction rate from the wells and the trenches is 4 to 7 gallons per minute.

The metal hydroxide sludge produced from the metal precipitation process would be pumped into 55-gallon drums for storage. Approximately one 55-gallon drum of sludge would be produced per day.

The air stream exiting the air stripping towers would contain VOCs which would require treatment prior to discharge to the atmosphere. Accordingly, the air stream from the tower would be dehumidified and passed through vapor phase activated carbon beds where the VOCs would be selectively adsorbed and removed from the air stream.

If determined necessary, the treated groundwater from the air stripping tower would be discharged to a granular activated carbon unit for final treatment. Activated carbon is effective in adsorbing a wide range of organic compounds and can achieve high removal efficiencies of 80 to 100 percent for many of the 126 compounds on EPA's priority pollutant list. The combination of chemical coagulation and

activated carbon would be designed to reduce organic and metal concentrations to below the cleanup standards established for the Site.

Finally, treated groundwater would be pumped to recharge beds located along the western border of the Site next to the wetlands. The recharge beds would allow the treated groundwater to be discharged uniformly to the ground and ultimately into the groundwater aquifer and wetland.

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES

A. Summary of Preliminary Design Findings

On September 7, 1988, NHDES, under a cooperative agreement with EPA, contracted with Camp, Dresser & McKee, Inc. (CDM) to prepare Remedial Design Documents for the Site in accordance with the selected remedy set forth in the ROD. Promptly thereafter, CDM commenced preliminary design field investigation at the Site, consisting of the following activities: additional soil sampling to further define the extent of soil contamination; installation of additional monitoring wells, both on-site and off-site; groundwater sampling of all monitoring wells, including newly installed monitoring wells; performance of soil permeability tests to identify possible areas for discharge of treated groundwater; and installation of a test trench on-site to determine the effectiveness of an interceptor trench for collecting groundwater.

All preliminary design field work was completed by early 1989, and in April 1989 a Draft Preliminary Design Data Evaluation Report (Design Report) was prepared. The following findings are presented in the Design Report:

1. Soil Investigation

A soil gas program was conducted at the Site to help evaluate and define the current horizontal extent of subsurface contamination. The soil gas program focused primarily on identifying the five contaminants identified in the ROD as indicator compounds for which cleanup levels are specified. These contaminants include: benzene; 1,2-dichloroethane (DCA); trichloroethylene (TCE); 1,1-dichloroethylene (DCE); and tetrachloroethylene (PCE). In addition, soil gas samples were analyzed for the presence of 1,1,1-trichloroethane (TCA), toluene, ethylbenzene and xylenes. Results of the soil gas program indicate that indicator compounds DCE, benzene, TCE, and PCE, as well as TCA are confined to certain areas located mainly south and east of the Site structures designated buildings 1 and 2, as shown in Tables 2.2 through 2.6 of the Design Report.

Subsurface soils were sampled and evaluated to determine:

(1) the extent of soil contamination;

(2) design parameters for soil remediation; and

(3) whether there is a correlation between contaminants detected during the soil gas program and contaminants found in Site soils.

Thirty nine soil samples were taken at varying depths from ten locations on-site. Analysis of the soil samples indicates that concentrations of contaminants present in the soils are below soil cleanup standards established in the ROD. Based on this data, and in keeping with the ROD, EPA has determined that soil remediation is no longer necessary. Analysis of the soil samples also reveals that no apparent correlation exists between soil gas data and soil sampling data. Rather than reflecting soil contamination, the soil gas data appears to reflect contamination in the groundwater.

2. Groundwater Investigation

As part of the pre-design investigation, 21 additional groundwater monitoring wells were installed on and off-site. Groundwater samples from 32 on-site monitoring wells and 12 off-site monitoring wells were collected and analyzed to determine the extent of contaminant movement subsequent to the previous round of groundwater sampling conducted during the Supplemental Remedial Investigation. Analysis of this latest round of groundwater sampling revealed that 26 of the 32 on-site groundwater samples and 3 of the 12 off-site groundwater samples contained indicator compounds at concentrations above the cleanup standards established in the ROD. These results show that contaminated groundwater has moved deeper into the more impermeable till below the Site, i.e., the soil below the upper 15 feet of saturated till (the Deep Till), and has also migrated west of the Site into a sand and gravel aquifer below the wetland.

EPA has determined that remediation of the groundwater trapped in the Deep Till is not necessary for two reasons. First, the Deep Till exhibits the characteristics of a Class III groundwater aquifer on the basis of insufficient yield, as described in EPA Guidelines for Ground-Water Classification under the EPA Ground-Water Protection Strategy (December 1986). Investigations indicate that a well, screened the entire thickness of the Deep Till, would yield subsantially less water than the volume required to support an average residential user (150 gallons per day). Put another way, the soils in this area are so tight that it

would be pointless to sink a well there because the well would not produce enough water to be useful. Second, the Deep Till exhibits a low degree of interconnection with the upper till aquifer, bedrock aquifer and the sand and gravel aquifer below the wetland. EPA believes that any release of contamination from the Deep Till into the upper overburden aquifer, the lower bedrock aquifer, or the sand and gravel aquifer off-site, will be at such a low rate that cleanup standards for groundwater will still be maintained. Therefore, remediation of the Deep Till is not necessary for protection of human health or the environment.

3. Trench Test

A test trench was installed on-site to determine the effectiveness of an interceptor trench in collecting contaminated groundwater from the upper overburden aquifer as well as to determine the effects an interceptor trench will have on the groundwater table.

Based on results of the trench test together with the soil permeability test results discussed below, an estimated flow of 11 gallons per minute would be obtained from the proposed interceptor trench. This flow rate assumes that the interceptor trench is approximately 1000 feet long and that treated groundwater is recirculated on-site upgradient of the trench.

4. Soil Permeability Tests

The ROD provides for the discharge of treated groundwater to recharge trenches along the western property boundary of the Site adjacent to the wetland. However, during the preliminary design investigation, it became apparent that, because of the migration of contaminated groundwater off-site, greater volumes of treated groundwater than previously estimated might need to be discharged back into the aquifer. Therefore, soil permeability tests were performed at various locations on-site to identify additional areas for discharge of treated groundwater.

Results of the permeability tests indicate that the area east of the former lagoon and the area south of the small storage structure designated Building 3 are the most permeable of the areas tested. The latter area, because it is relatively small and directly abuts the former lagoon, is not considered a suitable discharge area. The area south of Building 3, however, is large (approximately 10,000 square feet) and is located upgradient of the plume of contamination. This area is considered a more suitable area for discharge.

B. Recommendations

As described more fully above, the ROD specified that Site remediation would include both a source control component and a management of migration component. The source control component would consist of in-situ vacuum extraction for treatment of contaminated soils. The management of migration component would consist of groundwater extraction from the upper overburden and bedrock aquifers followed by treatment via air-stripping and discharge to an on-site recharge trench. The groundwater treatment system would be sized to treat a flow of 4-7 gallons per minute, and the cleanup standards established in the ROD for both soils and groundwater were expected to be achieved within five years. On the basis of the preliminary design investigation, EPA has determined that the following significant changes to the remedy specified in the ROD must be implemented:

1. Soil remediation is no longer necessary.

2. Groundwater remediation will still consist of extraction and treatment of groundwater from the upper overburden aquifer (upper 15 feet of saturated till) and the bedrock aquifer below the Site as described in the ROD. In addition, however, groundwater remediation will include extraction and treatment of groundwater from the contaminated sand and gravel aquifer below the wetland west of the Site. Further off-site investigations must first be conducted both to determine the extent of contamination in the sand and gravel aquifer below the wetland and to determine the most effective locations for placement of off-site extraction wells.

3. Contaminated groundwater captured in the Deep Till below the Site will not be remediated. Upon attainment of the Cleanup Standards in the upper till and bedrock aquifers and off-site sand and gravel aquifer, some form of institutional control, such as a deed restriction on the use of groundwater below the Site, will be implemented to insure the protection of public health and the environment. Groundwater will continue to be monitored to insure that Cleanup Standards are not exceeded. EPA is authorized to take further action if necessary to protect the public health and the environment.

4. Groundwater remediation shall continue until the following conditions are met for two consecutive quarterly sampling rounds:

- all cleanup standards have been attained in the upper overburden and bedrock aquifers on-site and in the sand and gravel aquifer off-site and

- the groundwater quality is determined to be protective of public health and the environment.

If the above conditions are not met after ten years of treatment, EPA, in consultation with NHDES, will reevaluate the appropriateness of the groundwater treatment system and/or the cleanup standards.

5. Additional off-site investigations will be performed to determine the extent of contamination in the sand and gravel aquifer.

6. The groundwater extraction, treatment and recharge system will be designed to accommodate the following flows:

On-site collection trench	20 gpm
On-site bedrock wells	10 gpm
Off-site wells	30 gpm
Total Design Flow	60 gpm

7. Treated groundwater will be discharged to recharge trenches located south of Building 3, upgradient of the contaminated groundwater plume, as well as to a recharge trench located along the western property boundary adjacent to the wetland.

8. Upon completion of construction of the groundwater treatment facility, the Site shall be graded and overlain with a six inch (6") cover of screened organic loam. Permanent grass shall then be planted over the entire Site area.

III. Support Agency Comments

The State of New Hampshire concurs with these modifications as set forth in the attached concurrence letter dated June 8, 1990.

IV. Statutory Determinations

Considering the new information presented in the Preliminary Design Data Evaluation Report and the above-outlined adjustments to the selected remedy set forth in the ROD, EPA believes that the remedy remains protective of human health and the environment, complies with all Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the revised remedy,

groundwater treatment, is a permanent solution and utilizes alternative treatment or resource recovery technologies to the maximum extent practicable for this site. Attainment of the Cleanup Standards (i.e. Maximum Contaminant Levels) in the Deep Till is not relevant and appropriate in accordance with Section 121 of CERCLA. This determination is based on the fact that the Deep Till does not have the potential to be used as a water supply, and its interconnection with other beneficial aquifers is so low that Cleanup Standards will continue to be maintained in the beneficial aquifers.

V. Public Participation

An informational meeting to present the findings of the Preliminary Design Data Evaluation Report and EPA's recommendations for changes to the remedy will be held on Tuesday, June 26, 1990 at 7:00 pm in the Epping Town Hall.

APPENDIX II

REMEDIAL ACTION PLAN

TABLE OF CONTENTS

REMEDIAL ACTION PLAN

I. PURPOSE OF PLAN

This Remedial Action Plan (RAP) defines the remedial activities the Respondents shall perform at the Keefe Environmental Services Hazardous Waste Site as set forth in the United States Environmental Protection Agency (EPA) Record of Decision (ROD) signed by the Regional Administrator, Region I, on March 22, 1988, as modified by the Explanation of Significant Differences (ESD) issued on June 8, 1990. Parts II and III of this RAP set forth a description of the remedies for the soil and groundwater respectively. Parts IV and V of this RAP, and the design documents prepared by EPA and the New Hampshire Department of Environmental Services (NHDES), set forth the requirements and procedures that the Respondents shall follow during Remedial Action and Operation & Maintenance phases of the work.

II. DEFINITIONS

The definitions provided in the Administrative Order are incorporated herein by reference. In addition, the following definitions shall apply to this RAP:

"Aquifer" shall mean an underground geological formation, or group of formations, containing usable amounts of groundwater that can supply wells and springs.

"Bedrock" shall mean the solid rock that underlies all soil, sand, clay, gravel and loose material.

"Order" shall mean the Administrative Order Docket No. I-90-1064, issued in the Matter of the Keefe Environmental Services Superfund Site, to which this RAP is an Appendix.

"Overburden" shall mean all soil, sand, clay, gravel and loose material that cover the bedrock.

"Upper Overburden Aquifer" shall mean the upper fifteen (15) feet of saturated overburden below the Site.

III. REMEDY FOR SOIL

Vacuum extraction of Site soils as described in the ROD will not be performed for reasons set forth in the ESD. Accordingly, as described in the Design Documents, the Respondents shall implement a remedial action consisting of final site grading,

placing a six inch (6") cover of screened organic loam over the entire Site and planting permanent grass over the entire Site as delineated in the Design Documents.

IV. GROUNDWATER TREATMENT

For groundwater contaminated with Hazardous Substances at concentrations above Cleanup Standards, as set forth in Table 1, in the Upper Overburden Aquifer and bedrock aquifer below the Site and the sand and gravel aquifer off-site, the Respondents shall implement a remedial action that will include groundwater extraction, treatment and discharge.

A. Cleanup Standards for Contaminated Groundwater

Specific groundwater Cleanup Standards shall be met at all locations in the Upper Overburden Aquifer and bedrock aquifer below the Site and in all off-site locations in the remedial action in accordance with the following objectives:

1. To restore the contaminated portion of the aquifer to drinking water quality in as short a time as practicable; and

2. To prevent the migration of contaminated groundwater into uncontaminated portions of the aquifer.

The Cleanup Standards for groundwater are presented below in Table 1.

TABLE 1

Cleanup Standards

Volatiles	Cleanup Standards (ppb)
Benzene	5
Tetrachloroethene	5
Trichloroethene	5
1,2 Dichloroethane	5
1,1 Dichloroethylene	7

These Cleanup Standards shall be met at all on-site and off-site monitoring wells.

B. Treatment for Contaminated Groundwater

1. In the Upper Overburden Aquifer and bedrock aquifer below the Site and in all off-site areas downgradient of the Site where groundwater is contaminated above Cleanup Standards, the

Respondents shall implement remedial action consisting of groundwater extraction, treatment and on-site discharge. The Respondents shall extract groundwater using a combination of overburden and bedrock wells and an overburden collection trench system. The location and design of the on-site collection trenches and bedrock wells is as defined in the Design Documents. The location of the off-site overburden collection wells will be determined by EPA, after opportunity for review and comment by NHDES, upon completion of an Off-Site Evaluation currently being performed.

2. Collected groundwater shall be treated using physical and chemical processes for removal of metals and volatile organic compounds to levels which meet Federal and State drinking water standards and then discharged to on-site recharge trenches. Contaminated groundwater shall first be treated through chemical coagulation and precipitation to reduce the level of iron, thereby preventing clogging of the organics treatment system (air-stripper).

3. Following treatment in the inorganics treatment system, the clarified contaminated groundwater shall be pumped to an air stripping tower. Following air-stripping, VOCs driven from the water into the air stream, shall be removed in a vapor phase carbon adsorption system.

C. Performance Standards

1. Prior to Site discharge, all groundwater shall be treated to levels that attain State and Federal drinking water standards as set forth in the ROD.

2. Prior to discharge to the atmosphere, all air from the airstripper shall be treated in accordance with all EPA guidance documents.

3. Groundwater remediation shall continue until the following conditions are met for two consecutive quarterly sampling rounds:

a. all Cleanup Standards have been attained in the Upper Overburden Aquifer, the bedrock aquifer below the Site, and the sand and gravel aquifer off-site; and

b. the groundwater quality is protective of public health and the environment as determined by EPA, after opportunity for review and comment by NHDES.

D. Additional Risk Assessment

In the event that contaminants other than those listed in Table 1 are detected after the Cleanup Standards have been attained, the Respondents shall perform a risk assessment to determine if the remedy is protective of human health and the environment as discussed in Part V(B) of this RAP.

V. REMEDIAL ACTION

A. Initial Remedial Action Steps

1. Within ten (10) days of the effective date of the Order, the Respondents shall submit to EPA the names and qualifications of the contractor(s) from whom the Respondents will solicit proposals to prepare the Remedial Action Work Plan, provide technical support and provide construction supervision as required under the Order. EPA, after opportunity for review and comment by NHDES, may disapprove any or all of the contractors. The failure of EPA to disapprove any proposed contractor shall not preclude EPA from disapproving the selected contractor.

2. Within ten (10) days after EPA receives the list of proposed contractors, pursuant to Part V(A)(1) above, the Respondents shall submit to EPA a Letter of Acceptance from the selected contractor(s). EPA reserves the right to disapprove the selected contractor(s).

B. Remedial Action Work Plan

1. Within forty-five (45) days of the effective date of the Order, the Respondents shall submit a detailed draft Remedial Action Work Plan (RA Work Plan) to EPA's RPM and NHDES' Contact Person for review and EPA approval.

2. The detailed draft RA Work Plan shall provide a description and schedule for the completion of all major milestones, deliverables and activities necessary to implement the Remedial Action required by this RAP and the ROD as modified by the ESD, including activities necessary to meet the Cleanup Standards and any associated activities required by the Order. The RA Work Plan must include at a minimum the following:

a. A Construction Management Plan (CMP) for constructing all facilities as described in the ROD, as modified by the ESD, this RAP, and the Design Documents.

1. The CMP shall set forth procedures for the following activities:

i. Awarding project contracts;

ii. Providing Site security, utilities, decontamination facilities, and air quality monitoring during construction;

iii. Constructing all necessary access roads at the Site;

iv. Installing overburden groundwater recovery trenches on-site;

v. Installing bedrock groundwater recovery wells on-site;

vi. Installing overburden groundwater recovery wells off-site;

vii. Constructing the groundwater treatment facility;

viii. Installing groundwater recharge trenches on-site;

ix. Designing and placing the final cover over the Site; and

x. Any other activities required under the Order relating to construction of the remedial action.

2. In addition, the CMP shall include the following plans:

i. A plan for final testing and acceptance of all work performed and facilities constructed; and

ii. A Construction Quality Assurance/Quality Control Plan as described in Attachment 1 to this RAP.

b. A proposed schedule providing dates for the start and completion of each of the tasks identified in the CMP.

c. The names, addresses and telephone numbers of all general contractors, subcontractors and all other contractors who will be performing work at the Site pursuant to the Order, and a list of the tasks to be performed by each, to the extent known as of the date

the draft RA Work Plan is submitted to EPA and the State.

d. A Field Operations Support Plan (FOSP), for all field work to be conducted pursuant to the Order. The FOSP shall include, but not be limited to:

i. A contingency plan that is specifically tailored to the Site and surrounding areas including an air monitoring program which assures compliance with the Site Health and Safety Plan described in Item iv. below, and procedures for notification of the public in case of emergency.

ii. A detailed Quality Assurance/Quality Control Plan for sampling and analysis as described in Attachment 1 to this RAP.

iii. A detailed sampling and analysis plan, as described in Attachment 2 to this RAP, which provides for quarterly sampling of residential wells along Old Exeter Road adjacent to the Site as well as all on-site and off-site monitoring wells. The sampling and analysis plan shall also include provisions for furnishing EPA and NHDES with split samples.

iv. A Site Health and Safety Plan for the Site and surrounding areas, as described in Attachment 3 to this RAP, which complies with OSHA standards and regulations contained in 29 CFR §§1910 and 1926.

v. Procedures for notification of, consultation with and reporting to EPA and NHDES in planning and implementation of all activities required by the Order.

vi. A plan describing in detail the format and content of the monthly progress reports, quarterly sampling and analysis reports, field logbooks and treatment plant monitoring data necessary to assure compliance with all Cleanup and Performance Standards.

vii. A Site Security Plan detailing how security at the Site will be maintained and how access to the Site will be limited to authorized personnel.

e. An Implementation Plan that provides for: long-term operation and maintenance of all components of the Remedial Action, assuring continued effectiveness of

the Work required by the Order, achievement and demonstration of conformance with Cleanup and Performance Standards; maintenance of the final remedy; monitoring of the migration of contaminants from the Site; and a schedule for completion of each maintenance and monitoring activity. The Implementation Plan shall also include the following components:

i. Excavation and grading plan;

ii. Treatment by-products disposal plan; and

iii. Site closure plan as described in Attachment 4 to this RAP.

3. EPA, after opportunity for review and comment by NHDES, will review the draft RA Work Plan and provide written comments to the Respondents. The Respondents shall have ten (10) days from the date of receipt of EPA's comment letter in which to meet with EPA and NHDES to discuss the comments. At that time EPA, after opportunity for review and comment by NHDES, may agree to modify or delete any comment. Any comment not deleted as a result of this meeting shall be considered final.

4. Regardless of whether a meeting occurs pursuant to provision IV (A)(3) above, within twenty (20) days of the date of EPA's comment letter, the Respondents shall make all changes necessary to satisfy EPA's final comments and present a final RA Work Plan and shall submit five (5) copies of this Work Plan to EPA for approval. If it is acceptable to EPA, EPA will issue written approval of the RA Work Plan to the Respondents. If the final RA Work Plan is unacceptable to EPA, EPA in its discretion may either unilaterally prepare and send an approved RA Work Plan to the Respondents or require the Respondents to make further revisions within a specified time frame.

5. As new information becomes available during the performance of the Work which requires adjustments to the final RA Work Plan, including but not limited to the availability of Design Documents addressing the installation of an offsite extraction system, the Respondents shall prepare addenda to the RA Work Plan. The addenda shall be submitted to EPA for review and approval. Upon written approval by EPA such addenda shall be incorporated into the final RA Work Plan.

C. Remedial Action Contractors and Implementation of Remedial Action Work Plan

1. Within thirty (30) days after the effective date of the Order, the Respondents shall submit to EPA the names and qualifications of the contractors from whom the Respondents will solicit bids to perform the remedial action tasks set forth in this RAP. EPA may disapprove any or all of the proposed bidders. The failure of EPA to disapprove any proposed bidder shall not preclude EPA from disapproving the selected contractor.

2. Within fifteen (15) days after EPA receives the Respondents' list of proposed bidders, the Respondents shall notify EPA of the name of the recommended contractor and shall submit to EPA a letter of acceptance from that contractor. EPA reserves the right to disapprove the recommended contractor. EPA, after opportunity for review and comment by NHDES, will notify the Respondents' designated representative in writing of the approval or disapproval of the Respondents' recommended contractor.

3. Within fifteen (15) days after the Respondents receive EPA approval of the RA Work Plan, in accordance with Part V(B)(4) above, the Respondents shall initiate remedial activities in accordance with the RA Work Plan and schedules contained therein.

4. During the construction period, the Respondents and the Respondents' contractor(s) shall meet monthly with EPA regarding progress and details of construction.

5. Upon completion of construction of the groundwater extraction and treatment system, the Respondents shall submit to EPA a final remedial construction report for each component of the remedy for EPA approval.

6. The time for completion of the remedial action, as specified in the Design Documents, shall begin from the date of EPA's written approval of the RA Work Plan.

VI. OPERATION AND MAINTENANCE AND LONG TERM MONITORING

A. Operation and Maintenance Manual

1. At 50% construction completion of the groundwater treatment facility, the Respondents shall submit a draft Operation and Maintenance Manual (O&M Manual) that shall ensure the long-term maintenance and continued effectiveness of the remedial actions. The draft O&M Manual shall include, but not be limited to, the following:

a. A Site-specific contingency plan which includes procedures for notification of the public, local officials, State officials and EPA in case of an emergency.

b. A detailed sampling and analysis Quality Assurance/Quality Control plan, as described in Attachment 1 to this RAP, to monitor the effectiveness of the groundwater treatment facility.

c. A groundwater sampling plan to demonstrate conformance with groundwater Cleanup Standards. This plan should specify if additional monitoring wells are necessary to accurately demonstrate attainment of groundwater Cleanup Standards.

d. A sampling plan, as described in Attachment 2 to this RAP, to be instituted after the groundwater treatment has ceased, to determine whether Cleanup Standards in groundwater are being maintained. The sampling plan shall include provisions for complying with the requirements of Part VI(B) to this RAP and include a schedule for providing EPA and NHDES with sampling and analysis reports.

e. A Health and Safety Plan in conformance with OSHA standards and regulations contained in Part 29 of the Code of Federal Regulations and as described in Attachment 3 to this RAP.

f. A schedule for completion of each maintenance and monitoring activity.

2. EPA, after opportunity for review and comment by NHDES, shall review the draft O&M Manual and provide written comments to the Respondents for inclusion in the final O&M Manual. The Respondents shall have fifteen (15) days in which to meet with EPA to discuss the written comments at which time EPA may choose to modify or delete any of the written comments. Comments not deleted shall then be considered final.

3. Regardless of whether a meeting is held, the Respondents shall make all changes necessary to satisfy EPA's final comments and present a final O&M Manual, and shall submit to EPA for approval five (5) copies the final O & M Manual prior to 90% completion of construction. If the final O&M Manual is acceptable to EPA, EPA will issue a written approval of the O&M Manual. If the revised O&M Manual is deemed unacceptable by EPA, EPA may unilaterally prepare an O&M Manual and send it, as an approved O&M

Manual, to the Respondents. Once approved, any modifications to the final O&M Manual, proposed by the Respondents, must be reviewed and approved in writing by EPA.

B. Long Term Monitoring

Groundwater remediation shall continue until Cleanup Standards are met for two consecutive quarterly sampling rounds, at which point a risk assessment shall be performed to insure that the cumulative carcinogenic risk of all remaining compounds falls within EPA's 10-4 to 10-6 acceptable carcinogeic risk range. Following a demonstration that these two conditions have been met, EPA, after opportunity for review and comment by NHDES, shall issue written authorization allowing the Respondents to cease groundwater treatment. Groundwater shall then be monitored quarterly for a period of three years to insure the effectiveness of the remediation. If, at any point during this three year monitoring period the level of contamination exceeds the Cleanup Standards or the cumulative risk exceeds the acceptable risk range as determined by EPA, the collection and treatment system shall be re-activated and shall continue to operate until such time as the Cleanup Standards are again consistently met for two quarterly sampling rounds and the cumulative risks are within the acceptable risk range as determined by EPA. Once groundwater Cleanup Standards, including the acceptable risk range, are maintained for the three year monitoring period, a monitoring program shall be implemented consistent with New Hampshire Hazardous Waste and Solid Waste Rules.

ATTACHMENT 1

PROJECT ACTIVITIES QUALITY ASSURANCE/QUALITY CONTROL PLANS

Quality Assurance/Quality Control (QA/QC) Plans shall be prepared to specify the procedures to be used to insure that the technical specifications of the materials and equipment are met and to specify the procedures to be used in all sampling and analyses to insure that quality data is obtained. Two separate types of QA/QC Plans shall be developed. The first type of QA/QC Plan, the Construction QA/QC Plan shall specify the procedures to be utilized to insure that the performance standards and technical specifications for each component of the remedy are met and shall be developed in accordance with OSWER Report No. EPA/530-SW-86-031, Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, and any future relevant guidance documents. The second type of QA/QC Plan shall be developed for the sampling and analysis events described in the Field Sampling and Analysis Plan and Operation and Maintenance Manual. The QA/QC plans shall be prepared in accordance with EPA guidance document QAMS-005/80 and Data Quality Objectives guidance documents EPA/540/G-87/003 and 004 (March 1987). At a minimum the following topics shall be addressed in the QA/QC Plans:

1. title page with provisions for signatures of principal investigators;

2. table of contents;

3. project description;

4. project organization and responsibility;

5. quality assurance objectives for measurement data, stated in terms of precision, accuracy, completeness, representativeness, correctness and comparability;

6. sampling procedures;

7. sample chain of custody;

8. field and analytical equipment, calibration procedures, references and frequency;

9. analytical procedures, which must be EPA approved, or equivalent methods;

10. data reduction, validation and reporting;

11. internal quality control checks and frequency;

12. quality assurance performance audits, system audits and frequency of implementation and non-conformance reports;

13. preventive maintenance procedures and schedules;

14. specific routine procedures to be used to assess the precision, accuracy and completeness of data and to assess specific measurement parameters involved;

15. corrective action; and

16. quality assurance reports.

ATTACHMENT 2

FIELD SAMPLING AND ANALYSIS PLAN

The Field Sampling and Analysis Plan shall be developed to specify the procedures to be followed for all samples to be taken pursuant to the Order and the RAP. This plan shall, at a minimum, address the following elements for sampling of groundwater, surface water, sediments and air during the construction and the operation of each component of the remedy:

1. data quality objectives of the sampling effort, with particular emphasis on Performance Standard requirements;

2. type, location, rationale and construction specifications for placement of any proposed monitoring wells, well screens and borings;

3. type, quantity, frequency, and location of samples to be collected;

4. sampling methods to be used including any well sampling and evaluation procedures, provisions for split sampling, split spoon sampling, composite sampling, sampling preservation techniques, equipment needs and equipment cleaning and decontamination procedures, and field support requirements;

5. sample shipping and chain-of-custody procedures;

6. type of analysis to be run on each sample including reference to appropriate EPA approved/specified analytical methods; and

7. a discussion of chemical constituents of interest and historical ranges of concentrations based on available data.

ATTACHMENT 3

SITE SPECIFIC HEALTH AND SAFETY PLAN

A Site specific Health and Safety Plan (HSP) shall be prepared as part of the Field Operations Support Plan to be included as part of the Remedial Action Work Plan to address potential hazards to the field remedial team and the surrounding community potentially impacted by Site activities. This plan shall be consistent with the applicable guidelines of EPA's Health and Safety Planning for Remedial Investigations under CERCLA (EPA/540/G-85/002, June 1985) and the requirements of the Occupational Safety and Health Administration (OSHA) Guidelines for Hazardous Waste Operations and Emergency Response Activities (interim final rule, 29 CFR Part 1910 as amended, Federal Register Vol. 51, No. 244, December 19, 1986).

The plan shall be adequate to assure the safety of the field team and the community during all activities conducted pursuant to the Order, including sampling, construction and operation of the remedial actions. Contingency plans shall be developed to address situations which may likely impact the off-site community.

The Health and Safety Plan shall address at a minimum the following items:

1. personal protective equipment requirements;
2. on-site monitoring equipment requirements;
3. safe working procedures specifications;
4. equipment decontamination procedures;
5. personnel decontamination procedures; and
6. special and emergency procedures, including contingency plans consistent with 40 CFR §264 Subpart D and He-P 1905.08(d)(4)i for the operation of the remedial action.

ATTACHMENT 4

SITE CLOSURE AND MONITORING PLAN

A Site specific Closure Plan shall be developed as part of the Implementation Plan to the Remedial Action Work Plan. The Site Closure and Monitoring Plan shall provide for:

1. Maintenance of the integrity and effectiveness of the Work, including making repairs to the cover as necessary to correct for the effects of settling, subsidence, erosion, or other events.

2. Groundwater monitoring to ensure that the Cleanup Standards are maintained.

3. Protection and maintenance of surveyed benchmarks and Site security measures.

4. Surface water monitoring adequate to monitor the effectiveness of the Work required by the Order.

APPENDIX III

KEEFE ENVIRONMENTAL SERVICES

NPL Site Administrative Record

Supplement

Index

As of: June 8, 1990

Region I
Waste Management Division
U.S. Environmental Protection Agency

Keefe Environmental Services

NPL Site Administrative Record Supplement

Table of Contents

INTRODUCTION

This document is the index to the Administrative Record Supplement for the Keefe Environmental Services National Priorities List (NPL) site.

The Administrative Record and Supplemental Administrative Record are available for public review at EPA Region I's Office in Boston, Massachusetts, and at the Epping Library in Epping, New Hampshire. **This Administrative Record Supplement includes, by reference only, all documents included in the March 21, 1988 Administrative Record (March 21, 1988 Record of Decision) for this NPL site.** Questions concerning the Administrative Record and the Administrative Record Supplement should be addressed to the EPA Region I site manager.

The Administrative Record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

Section I

Site Specific Documents

INDEX to the ADMINISTRATIVE RECORD SUPPLEMENT
for the
KEEFE ENVIRONMENTAL SERVICES NPL SITE

6.0 Remedial Design (RD)

6.1 Correspondence

1. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Chester L. Janowski, EPA Region I (June 2, 1989). Concerning transmittal of attached:
   A. Memorandum from Ralph Preble, Camp Dresser & McKee, Inc., to Peter Borowiec, Camp Dresser & McKee, Inc. (May 11, 1989). Concerning well yield from dense lower till at the Keefe site.
   B. Memorandum from Jan Drake, Camp Dresser & McKee, Inc., to Bill Swanson and Peter Borowiec, Camp Dresser & McKee, Inc. (May 31, 1989). Concerning the anticipated groundwater quality in the sand and gravel at the Keefe site.

2. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Thomas C. Andrews, New Hampshire Department of Environmental Services (August 31, 1989). Concerning the estimated cost of cover material for the Site.

3. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Thomas C. Andrews, New Hampshire Department of Environmental Services (September 7, 1989). Concerning the need for treatability studies.

4. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Thomas C. Andrews, New Hampshire Department of Environmental Services (September 26, 1989). Concerning analytical data from the August 1989 groundwater sampling effort with attached field logs of monitoring well installations.

5. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Thomas C. Andrews, New Hampshire Department of Environmental Services (October 5, 1989). Concerning transmittal of attached:
   A. Preliminary Sizing of Process System Components.
   B. Air Stripper Design Parameters.
   C. An estimate of sludge volumes generated in the flocculation process.

6.1 Correspondence (continued)

6. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Thomas C. Andrews, New Hampshire Department of Environmental Services (November 3, 1989). Concerning transmittal of attached:
   A. Preliminary sketches of two suggested floor plans.
   B. Table of Contents for project specifications.
   C. Summary of Work.
   D. Order and Schedule of Construction.

7. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Chester L. Janowski, EPA Region I (January 11, 1990). Concerning the submittal of raw analytical data from the August 1989 groundwater sampling effort.

8. Letter from Thomas C. Andrews, New Hampshire Department of Environmental Services, to Marcel Bruno (January 23, 1990). Concerning the results of the residential well sample collected on December 7, 1989.

9. Letter from Thomas C. Andrews, New Hampshire Department of Environmental Services, to Mr. Strafford Keller (January 24, 1990). Concerning the results of the residential well sample collected on December 7, 1989.

10. Letter from Thomas Andrews, New Hampshire Department of Environmental Services, to Mr. Howard Evans (January 24, 1990). Concerning the results of the residential well sample.

11. Letter from Thomas C. Andrews, New Hampshire Department of Environmental Services, to Ms. Patricia White (January 24, 1990). Concerning the results of the residential well sample collected on December 20, 1989.

12. Letter from Thomas C. Andrews, New Hampshire Department of Environmental Services, to Mr. Fredrick Hopper (January 24, 1990). Concerning the results of the residential well sample collected on December 7, 1989.

13. Letter from Thomas C. Andrews, New Hampshire Department of Environmental Services, to David & Debra Roberts (January 24, 1990). Concerning the results of the residential well sample collected on December 7, 1989.

6.1 Correspondence (continued)

14. Letter from Thomas C. Andrews, New Hampshire Department of Environmental Services, to Brent Reid (January 24, 1990). Concerning the results of the residential well sample collected on December 18, 1989.

15. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Chester L. Janowski, EPA Region I (March 12, 1990). Concerning attached:
    A. Draft project plans and specifications.
    B. Preliminary construction cost estimate.

16. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Chester L. Janowski, EPA Region I (April 5, 1990). Concerning transmittal of attached suggested operations, maintenance and staffing scenario for the Keefe site groundwater collection, treatment and recharge facility.

17. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Chester L. Janowski, EPA Region I (April 5, 1990). Concerning transmittal of attached itemized breakdown of the estimated supplemental construction costs.

18. Letter from Peter J. Borowiec, Jr., Camp Dresser & McKee, Inc., to Thomas Andrews, New Hampshire Department of Environmental Services (April 19, 1990). Concerning the submittal of the final construction drawings and specifications/bid documents.

6.2 Sampling and Analysis Data

1. Groundwater Sampling Analysis results. New Hampshire Department of Environmental Services (August 1989).

2. Groundwater Sampling Analysis results. New Hampshire Department of Environmental Services (April 1990).

6.4 Remedial Design Documents

1. "Draft Preliminary Design Data Evaluation Report for the Keefe Environmental Services Site", Camp Dresser & McKee, Inc. (April 1989).

2. "Draft Preliminary Design Data Evaluation Report Appendices", Camp Dresser & McKee, Inc. (April 1989).

6.4 Remedial Design Documents (continued)

3. "Invitation For Bids for Construction of Groundwater Collection and Treatment Facilities at the Keefe Environmental Services Site, Epping, New Hampshire", Camp Dresser & McKee, Inc. (April 1990).

4. "Keefe Environmental Services Site Remedial Design", Camp Dresser & McKee, Inc. (April 1990). Due to size, design drawings are filed separately from the Administrative Record Binders.

5. "Explanation of Significant Differences for the Keefe Environmental Services Superfund Site, Epping, New Hampshire", EPA Region I (June 1990).